REMARKS

Applicants have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action of January 2, 2009. Further consideration and examination of the Application is respectfully requested.

The Office Action

Claims 1-9 and 11-21 were presented for examination.

Claims 1-2, 7-9, 11-13 and 20-21 stand rejected as being anticipated by Scecina et al. ('223).

Claims 1-9, 11-13 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eryurek et al. ('755) in view of DelaCruz et al. ('402).

Claims 14-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eryurek et al., DelaCruz et al. and Westerfeld ('621).

Corresponding European Patent – EP 1 687 937 B1

While Applicants appreciate decisions made in other patent jurisdictions do not have any precedential value in U.S. prosecution, Applicants are providing as Attachment A, a copy of the corresponding European patent for its background discussion, which Applicants believe is useful in identifying the state of the art in this area of technology. Particularly paragraphs [0001] - [0010] discuss the art deemed relevant in that prosecution [The undersigned has not yet verified that this material was added to the EP patent at the request of the Examiner as is often the custom in European practice]. Following the review of the cited art, it is noted in paragraph [0009] that what is still needed in the art is a diagnostic system for a modular fieldbus board carrying a number of fieldbuses connected to a bulk power supply, where the diagnostic system includes a monitoring transceiver means to detect one or more fieldbus physical layer characteristics.

Discussion Regarding The "Response to Arguments" On Page 10 Of the Office Action

The main point in this section appears to be that Applicants are "placing more weight and inherent scope upon broad or general terminology . . .." Applicants respectfully traverse this position. It is stated in the Office Action that the broadest

reasonable interpretation of Applicants' terminology in the clams is being used. However, to be reasonable such interpretation needs to be made by placing oneself in the position of one of ordinary skill in the art. In this regard fieldbus technology has certain defined standards and terms. A standards organization known as The Fieldbus Foundation (www.fieldbus.org) has standardized many aspects of this area of technology, including defining various terms now in question, in for example, its document "System Engineering Guidelines".

Therefore, when the claims are interpreted Applicants respectfully request the interpretation be made in the context of fieldbus technology.

Also, when interpreting these words Applicants request the entire phrase be interpreted. For example, it is argued in the Office Action:

> An "injection/detection point" is merely a point at which signals <u>may be</u> detected or injected. As an example of a broadest reasonable interpretation, a conductor on a circuit board is a point at which signals may be read/detected/injected or the like.

The above statement does not take into account the language in the context of the claim and its relationship to the overall claimed structure, which recites that the monitoring transceiver means (17) is connected to the fieldbuses (8a-8n) by the signal injection and/or signal detection points (*i.e.*, 2, 4, 6, 7, 9 or 11). So "injection/detection pint" is not a point, but is a connector element. It is then further recited that these points (2, 4, 6, 7, 9 and 11) are formed to inject and/or detect both common mode and differential mode signals.

Therefore, the position in the Office Action that a conductor on a circuit board can be interpreted as simply a point at which signals may be read/detected/injected or the like is not proper. The claims recite structure much more detailed than what is suggested in the Office Action.

With continuing attention to the "Response to Arguments" section, the most recent Office Action failed to discuss, with any specificity, numerous distinguishing arguments made in the December 1, 2008 Amendment. For example, on page 13-14 of the Amendment, arguments were presented to show Scecina et al. "fails to teach any two or more fieldbuses...". The Applicants' argument for this position was not

addressed in the most recent Office Action.

On pages 14-17, arguments are set out showing that Scecina et al. "fails to teach 'a monitoring transceiver means . . .", but rather only teaches the testing for the "operability of the module" and nothing about physical layer characteristics. No comments were provided in the Office Action as to these arguments.

On pages 18-19, detailed arguments are set out showing that Scecina et al. does not teach points which are adapted to inject and/or detect common mode or differential mode signals. The Office Action did not address these arguments.

On pages 20-22, arguments are set out showing that Scecina et al. does not teach a fieldbus trunk (as known in the industry). Again, no counter arguments were noted, except for a position the "trunk is being broadly interpreted. However, as stated above, if interpreted as in the context of fieldbus technology, it is submitted, the arguments of distinction are proper.

On page 22 of the Amendment, an argument was made that the Scecina et al. references does not include the ideas or words "fieldbus physical layer characteristics" among other words which was alleged to be in the reference. Clarification was requested, but none was given.

On pages 23-25, detailed arguments showing Scecina et al does not teach the "first digital and/or analog interface . . ." of claim 7 are set forth. However, again, the Office Action simply makes no counterpoints to these arguments.

On pages 27-28, Applicants provide arguments explaining why Scecina et al. does not show or fairly suggest a bulk power supply or fieldbus trunk. Again, no specific counter arguments are provided in the most recent Office Action.

On pages 29-30, Applicants provide arguments as to a deficiency of Eryurek et al., as disclosing a number of fieldbuses, and that it does not have a bulk power supply. These arguments are not countered in the most recent Office Action.

On pages 31-33, detailed arguments are provided to show that Eryurek et al. includes diagnostic circuitry for each of the field devices, as opposed to a single diagnostic system for the overall fieldbus network. Again, these arguments are not addressed.

On pages 33-34 of the previous Amendment, DelaCruz et al. was shown to be

deficient in the main features of the present invention, including that the connection points are located between the bulk power supply and a fieldbus trunk of the fieldbus network. Arguments countering these positions were not provided.

On pages 34-35, Applicants set forth distinguishing positions from Westerfeld, noting that no power conditioner was taught therein. However, no counterarguments were presented.

The above are just some of the arguments set forth in the December 1, 2008 Amendment for which no comments were provided in the most recent Office Action. A number of other arguments providing distinctions between Scecina, et al., Eryurek et al., and DelaCruz were also not responded to in the Office Action. Applicants request these be addressed to allow Applicants to understand the reasons for the outstanding rejections.

Similarly, Westerfeld et al. was alleged to contain certain teachings which Applicants traversed in detail. No specifics as to Applicants' arguments were provided in this Office Action.

Applicants therefore maintain and incorporate herein all of their arguments as set forth in the Amendment of December 1st, 2008, and request comments as to why such arguments were not found persuasive, so they may fully consider the rejections.

<u>A Discussion Comparing The Technology Of The Present Application And The Applied Art</u>

Among the reasons the present application distinguishes itself from the cited art (and the other art existing at the time of its filing) was the discovery by the inventors that it was possible and there was value to the continuous monitoring/measuring of a fieldbus network at level higher than at individual field devices/modules, and that such monitoring/measuring could be accomplished between the bulk power supply and the fieldbus trunk, where the bulk power supply is used to supply power to the plurality of fieldbus segments of the fieldbus network.

At the time of this application, the state of the art did not appreciate this as a possibility and did not teach or suggest structure which was able to achieve the noted capabilities.

Rather, and as supported by what is described in the cited references, testing in fieldbus networks at that time focused on the field devices/modules themselves (e.g., components connected to the fieldbus segments such as valves, switches, detectors etc. used to control a particular manufacturing process).

To more clearly illustrate this distinction between what is claimed in the present application and concepts of the Scecina et al. and Eryurek et al., Applicants provide Attachment B. This document includes Figure 1 of the present application with the fieldbus segments 8a-8n extended to include fieldbus trunks having field devices/modules attached thereto. These field devices/modules are the valves, sensors within a manufacturing process. It is at these field devices/modules that the Scecina et al. and Eryurek et al perform testing. The testing is therefore performed on the individual modules. While on the other hand, the present application claims of a diagnostic system which works at a higher level and provides continuous monitoring of the state of the network by placing the testing points throughout the network power supply (i.e., between the bulk power supply, and the fieldbus trunk).

It is worth noting that neither of Scecina et al. or Eryurek et al. employ a bulk power supply as the fieldbus network power supply. This is clearly shown in Figure 2 of Eryurek et al. where 20 is the field device, and power module 30 provides power to the module, and in Scecina et al., there is no teaching of a filedbus power supply. This supports the understanding that there would be no reason for Eryurek et al. or Scecina et al. to implement the claimed subject matter. Attachment C, is page 29 from the document entitled "System Engineering Guidelines" from the Fieldbus Foundation where it is specifically noted that fieldbus devices may be powered either from the segment (bus), or locally powered, depending on the device design.

A structure to accomplish the concepts of the present application is illustrated in Figure 1 of the present application, which shows a diagnostic system that is part of a modular fieldbus board and is connected between and within the power supply components - such as bulk power supply (1), power supply converter (3), power supply conditioner (5) and the fieldbus trunk. As also shown in Figure 1, the above components are associated with each of the fieldbus segments 8a-8n. The diagnostic system includes monitoring transceiver means 17 (also called the segment autonomous

diagnostic system) and connection points 2, 4, 5, 6, 7, 9 and 11 these connection points are designed to connect the monitoring transceiver means 17 to fieldbus segments 8a-8n. The monitoring transceiver 17 is further shown in operative connection to digital interfaces 16 and 19 (see monitoring transceiver means 20 and analog interfaces 21, 22 of Figure 2).

On the other hand, the cited references, are again, concerned with systems/devices which test individual field devices/modules attached to the fieldbus segments.

As recited in the Abstract of Scecina et al. '223:

> A digital electronic module arrangement includes a module rack carrying a plurality of individual modules which can each be plugged into the rack. A test rack is connected to the module for applying test signals to each module. The module can select either process inputs or test inputs. A testing device provided for individually testing module outputs which respond to a common input. Each module has a rear bus board which has a connector that can be plugged into the module rack, and a forward digital bus board. A window in the front panel allows direct viewing of indicia on a chip corresponding to code within the chip. This code is electronically compared to code in the module software which relates to the module function. A nameplate on the front panel carries the same indicia for ensuring visual verification that the correct function is attributed to the correct module. Electronic verification is also provided by equipment in the test rack. Each module contains two diverse processors with connected logic for producing redundant signal processing and for creating a trip output when faults are detected either in the process or in the functioning of the module.

From the above, it can be seen Scecina et al. teaches that the testing device is "provided for individually testing module outputs . . .". It is further noted in the Abstract that the faults that are detected are either related to " . . . the process or in the functioning of the module."

Thus, the testing in Scecina et al. is for faults which occur in the individual field device. There is no teaching or suggestion that there would be a benefit to an integrated system which can monitor a variety of locations at the power supply itself.

With attention to of Eryurek et al. '755 as stated in the Abstract, this reference is also directed to monitoring individual field devices:

> A field device includes diagnostic circuitry adapted to measure a characteristic related to a process control and measurement system. The measured characteristic is used to provide a diagnostic output indicative of a condition of the process control and measurement system. The measured characteristic can be provided to a diagnostic module that operates upon the measured characteristic to predict, or otherwise model, a condition of the process control and measurement system.

The above shows the diagnostic circuitry is actually in the field device. In Figure 2, element 20 is a field device (see col. 2, line 56). The diagnostic circuitry is in the individual field device modules.

With attention to DelaCruz et al. this patent teaches the use of hand-held testing units. These are attached to obtain a "moment in time" measurement was taken. However, such device did not provide for continuous measuring/monitoring of the fieldbus and power supply, which would allow for the detection of degradation of a segment of the fieldbus over time. Rather, the hand-held portable device obtains an instantaneous measurement which would then be recorded for display on the device, and then possibly manually recorded at some other location.

Further, devices/systems of DelaCruz et al., Scecina et al., and Eryurek et al. are not capable of obtaining measurements at the power supply, as is possible by the claimed structure of the present application. Particularly, the present claimed structure permits measurements in the power supply board, as well as within the power supply components (e.g., power supply converter and the power supply conditioner).

Still further, the digital interfaces 16 and 19 and the analog interfaces (20 and 22 of Figure 2) provide for a system where there is a constant connection between the device of Figure 1 and a control system, such as in the form of alarms, etc. at a central monitoring station (not shown). Again, this is not obtainable by the cited references Scecina et al. and Eryurek et al. which are focused on the individual field devices/modules and DelaCruz which discusses a handheld device.

Claim Amendments

In view of the Examiner's comments, claim 1 has been amended to more particularly identify the "signal and/or signal detection points" as "common mode and differential mode signal and/or signal detection points". For the reasons argued above, it is submitted that this language be in the patent as appropriate in the fieldbus art.

Claim 1 has been also amended to note that the first digital and/or analog interface is physically separate from the fieldbus trunk. This construction is not taught or fairly seen in the cited art.

Claim 12 has been amended to conform to the changes to claim 1.

Independent claim 13 has been amended to more specifically identify that the modular fieldbus board is constructed with a number of fieldbuses where each fieldbus will include a connection to a bulk power supply, a power supply converter, a power supply conditioner, and a connection to the fieldbus trunk. It is then further noted that the monitor transceiving means is connected to these fieldbuses by two or more common mode and/or differential mode signal injection or signal detection points.

New claim 22 now defines the monitoring transceiver means as the segment autonomous diagnostic system.

Lastly, new claim 23 more follows an EP issued claim.